

Claims

It is claimed:

- 5 1. An apparatus for separation of tubes produced continuously on a row of mandrels, continuously coupled to one another, by the mandrels being advanced in a conveying direction (X) and by material layers being applied to the mandrels, there being a material difference from the mandrel material at a connection point of successive mandrels, comprising:
 - 10 a measuring device for detecting the connection point of the successive mandrels,
 a separating device, arranged downstream of the measuring device in the conveying direction (X), for the separation of the tubes, the separating device being controlled by the measuring device in order to align the separating device with the
15 connection point,
 wherein the separating device has a cutting head rotatable about the connection point, and advances in the conveying direction (X) synchronously with the mandrels during the separating operation.
- 20 2. The apparatus as claimed in claim 1, further comprising a device which is coupled to the separating device for releasing the connection between the mandrels at the connection point after the separation of the tubes.
- 25 3. The apparatus as claimed in claim 2, further comprising a conveying device arranged downstream of the separating device in the conveying direction which advances and singularizes the released mandrels.
- 30 4. The apparatus as claimed in claim 1, wherein the measuring device detects material differences between the mandrels at the connection point of the successive mandrels.
5. The apparatus as claimed in claim 4, wherein the measuring device has an inductive sensor.
- 35 6. The apparatus as claimed in claim 4, wherein the measuring device is a driver which is mechanically coupled to the separating device.

7. The apparatus as claimed in claim 1, wherein the measuring device has a measuring wheel, coupled to the mandrels, for detecting the feed of the mandrels.

5 8. The apparatus as claimed in claim 1, wherein the cutting head has a fixed or movable cutting edge.

9. The apparatus as claimed in claim 8, wherein the cutting head is ultrasound cutting, laser cutting or water-jet cutting.

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10. The apparatus as claimed in claim 3, wherein the measuring device detects material differences between the mandrels at the connection point of successive mandrels.

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11. The apparatus as claimed in claim 3, wherein the measuring device has a measuring wheel, coupled to the mandrels, for detecting the feed of the mandrels.

12. The apparatus as claimed in claim 11, wherein the cutting head has a fixed or movable cutting edge.

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13. The apparatus as claimed in claim 12, wherein the cutting head is ultrasound cutting, laser cutting or water-jet cutting.

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14. A method of separating tubes which are produced continuously on a row of mandrels, continuously coupled to one another, by the mandrels being advanced in a conveying direction (X) and by material layers being applied to the mandrels, there being a material difference from the mandrel material at a connection point of successive mandrels, the steps comprising:

detecting the connection point of the successive mandrels,

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positioning a cutting head of a separating device for cutting the tube to length wherein the cutting head is aligned with the detected connection point,

advancing of the separating device in the conveying direction (X) synchronously with the advancing speed of the mandrels,

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rotating of the cutting head about the circumference of the connection point for the circumferential cutting of the tube while the separating device is advanced, and

withdrawing of the separating device to an initial position after completion of the cutting operation.

5 15. The method as claimed in claim 14, further comprising:
 releasing of a connection between the mandrel which carries the cut-off tube
 and the following mandrel in the conveying direction (X), and
 advancing the released mandrel at a higher advancing speed than a speed of the
 advancing mandrel to singularize the released mandrel.

10 16. The method as claimed in claim 15, wherein the detecting of the connection
 point includes measuring material differences at the connection point of the successive
 mandrels.

15 17. The method as claimed in claim 16, wherein the measuring of the material
 differences is provided inductively or mechanically.

20 18. The method as claimed in claim 14, further comprising inductive measurement
 of the material differences at the connection point of the successive mandrels for
 detecting connection points.

25 19. The method as claimed in either of claims 14, wherein the detecting of the
 connection point is provided by a measuring wheel which is coupled to the mandrels.

30 20. The method as claimed in claim 14, wherein the tubes are cut off with a fixed
 or a moved cutting edge.

35 21. The method as claimed in claim 14, wherein the tubes are cut off by ultrasound
 cutting, laser cutting or water-jet cutting.

40 22. The method as claimed in claim 21, wherein the cutting head plunges into a
 circumferential cutting region at the connection point of the successive mandrels.

45 23. A method of separating tubes comprising the steps of:
 continuously supplying material on successive mandrels continuously coupled
 to one another to form the tubes;
 detecting a connection point of the successive mandrels,

aligning a cutting head for cutting with the detected connection point,
advancing the cutting head in a conveying direction (X) synchronously with
advancement of the mandrels, and

5 cutting at the connection point while the cutting head and the successive
mandrels are advancing.